Stoichiometry Again...
Grams & Percentage Yield

Some Simple Rules to Follow

- Write out chemicals
- Make sure that you wrote REAL chemicals.
  - Cancel out the charges. Make sure that the overall charge on every chemical is ZERO.
  - Remember that pure elements already have zero charge.
- Balance the equation you have written.
- Make a BCA table
  - Convert any masses into moles. NEVER put grams into a BCA table.
  - Solve your stoichiometry problem using the coefficients as mole ratios.
  - Convert moles back into grams if the question requires it.

Example 1:

A student burns 16.0 g of hydrogen in air to produce water. In the end, the student collects the water produced and finds that she has 132 g. What is the student's percentage yield?

16.0 g

$2H_2 + O_2 \rightarrow 2H_2O$

	$2H_2$	O_2	$2H_2O$
Before	8.0 moles	XS	0 moles
Change			
After			

Example 2:

By mixing iron (III) nitrate and sodium oxide, 0.30 moles of iron (III) oxide are precipitated out of a solution.

- (A) How many grams of iron (III) nitrate must have been added in the beginning?
- (B) If a student collects 41.7 g of the precipitate, what was the percent yield of this reaction?

$2Fe(NO_3)_3 + 3Na_2O \rightarrow Fe_2O_3 + 6NaNO_3$

	$2Fe(NO_3)_3$	$3Na_2O$	Fe_2O_3	$6NaNO_3$
Before	??? moles	XS	0 moles	0 moles
Change			+0.30 moles	
After			0.30 moles	

Percentage Yield

$$\% \text{ Yield} = \left[\frac{\text{Mass actually produced during the reaction}}{\text{Mass calculated using your BCA table}} \right] \times 100$$

Stoichiometry Again...
Grams & Percentage Yield

imple Rules to Follow

out chemicals
ure that you wrote REAL chemicals.
ncel out the charges. Make sure that the overall
rge on every chemical is ZERO.
nember that pure elements already have zero

Grams & Percentage Y

Some Simple Rules to Follow

- Write out chemicals
- Make sure that you wrote REAL chemicals.
  - Cancel out the charges. Make sure that the overall charge on every chemical is ZERO.
  - Remember that pure elements already have zero charge.
- Balance the equation you have written.
- Make a BCA table
  - Convert any masses into moles. NEVER put grams into a BCA table.
  - Solve your stoichiometry problem using the coefficients as mole ratios.
  - Convert moles back into grams if the question requires it.

Percentage Yield

$$\% \text{ Yield} = \left[\frac{\text{Mass actually produced during the reaction}}{\text{Mass calculated using your BCA table}} \right] \times 100$$

Example 1:

A student burns 16.0 g of hydrogen in air to produce water. In the end, the student collects the water produced and finds that she has 132 g. What is the student's percentage yield?

16.0 g

$$2H_2 + O_2 \rightarrow 2H_2O$$

Before	*8.0 moles*	*XS*	*0 moles*
Change			
After			

A student burns 16.0 g of hydrogen in air to produce water. In the end, the student collects the water produced and finds that she has 132 g. What is the student's percentage yield?

8.0 moles of water

Example 2:

By mixing iron (III) nitrate and sodium oxide, 0.30 moles of iron (III) oxide are precipitated out of a solution.

- (A) How many grams of iron (III) nitrate must have been added in the beginning?
- (B) If a student collects 41.7 g of the precipitate, what was the percent yield of this reaction?

	$2Fe(NO3)3$	+	$3Na2O$	-->	$Fe2O3$	+	$6NaNO3$
Before	??? moles		XS		0 moles		0 moles
Change					+0.30 moles		
After					0.30 moles